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Two New Species of the Genus *Thalassocrinus* (Echinodermata: Crinoidea: Hyocrinidae) from the Pacific Ocean

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Two new species of hyocrinid stalked crinoids from deep waters of the Pacific Ocean are described. *Thalassocrinus alvinae* n. sp. was collected on the Gorda Ridge and represents the first record of the genus from the Eastern Pacific. *Thalassocrinus mironovi* n. sp. was found on the bathyal slope off New Caledonia (southwestern Pacific). A short revision of the genus *Thalassocrinus* is given and affinities between the four known species are discussed.
Key Words: Echinodermata, stalked crinoids, *Thalassocrinus*, deep sea, Pacific Ocean.

Introduction

Following its initial description by A. H. Clark (1911), the genus *Thalassocrinus* was only known from a single specimen, the holotype of *Thalassocrinus pontifer* A. H. Clark, 1911 collected by the Albatross Expedition off the Molucca Islands (western tropical Pacific). Recently, a new specimen identified as *T.* aff. *pontifer* was found off New Caledonia (Bourseau *et al.* 1991), and two additional specimens were described from Russian expeditions (Mironov and Sorokina 1998) as two new species, *T. clausus* Mironov and Sorokina, 1998 from the northwestern tropical Pacific and *T. depauperatus* Mironov and Sorokina, 1998 from the Indian Ocean (off S.W. Java). Here, two additional new species are described. The first, *T. alvinae* n. sp., was collected by the submersible "Alvin" on the Gorda Ridge (northeastern Pacific). Secondly, following the suggestion of Mironov and Sorokina (1998), I give a more complete description of the above-mentioned specimen from New Caledonia and reassign it to another new species, *T. mironovi* n. sp., which is clearly different from *T. pontifer*.

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Description of Taxa

Family **Hyocrinidae** Carpenter, 1884
Subfamily **Hyocrininae** Carpenter, 1884
Genus ***Thalassocrinus*** A. H. Clark, 1911

Diagnosis. Most frequent proximal arm pattern 1+2 3 4+5 6+7, no series of 3 brachials (or more) united by synostoses ever present before Br 10, first pinnule at Br 5. Well developed oral and anal cones. Number of tegminal plates greater than 10 in each interradius. Dorsal cup with fused basals or 3 sutures. Proximal columnals hexagonal or hexalobate. Symplexies with 6 crenular units of 1 to 3 short crenulae each.

Discussion. As in other stalked crinoids, the most important taxonomic character lies in the arm pattern. *Thalassocrinus* appears to be closely related to *Hyocrinus* Wyville-Thomson, 1876 and *Anachalypsicrinus* A. M. Clark, 1973. In *Hyocrinus s. l.*, including *Belyaevicrinus* of Mironov and Sokorina (1998), the proximal arm pattern is mostly 1+2 3+4 5+6 or 1+2 3 4+5, with the first pinnule usually at Br 5 or 6 and frequently with a series of three or four (or more) brachials united by synostoses before Br 10 (Roux 1980; Roux and Pawson 1999). *Hyocrinus foelli* Roux and Pawson, 1999 is the only species of *Hyocrinus* known from numerous specimens for which a wide range of variation for the brachial bearing the first pinnule is documented, from Br 4 to Br 7 (mode at Br 5) (Roux and Pawson 1999). The single small specimen assigned to *Thalassocrinus* and described as *T. depauperatus* by Mironov and Sorokina (1998) shows one arm pattern with 1+2+3 4 5+6, the first pinnule at Br 6, stalk symplexies with seven or more crenular units of one or two crenulae each, and fewer than ten tegminal plates in each interradius. In fact, the only character supporting its place into *Thalassocrinus* could be the ratio of primibrachial width to radial upper width of 0.75–0.80. All the others drive to attribute *T. depauperatus* to *Hyocrinus*. This single small specimen is probably a juvenile of a species belonging to the genus *Hyocrinus* with relatively wide arms; Mironov and Sorokina (1998) proposed that its differences from the other species of *Thalassocrinus* justified the distinction of the new subgenus *Conferocrinus*. Therefore, if *T. depauperatus* is reassigned to *Hyocrinus s. l.*, *Conferocrinus* and *Belyaevicrinus* could be recognized as subgenera within the genus *Hyocrinus*.

In *Anachalypsicrinus*, the proximal arm pattern is 1+2 3 4+5 6+7 or 1+2 3 4 5+6, with the first pinnule at Br 4 or 5 and with no series of more than two brachials united by synostoses beyond the brachial bearing the first pinnule (A. M. Clark 1973; Mironov and Sorokina 1998; Roux 1990). Stalk symplexies have seven to twelve crenular units of one to five crenulae each. There is a low anal cone. According to Mironov and Sorokina (1998), *Ptilocrinus atlanticus* Roux, 1990 belongs to *Anachalypsicrinus*.

Thalassocrinus appears intermediate between *Hyocrinus* and *Anachalypsicrinus*. Four species are now assigned to *Thalassocrinus*: *T. pontifer* (type species of the genus), *T. clausus*, *T. alvinae* n. sp., and *T. mironovi* n. sp.

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Thalassocrinus alvinae n. sp.
(Figs 1–4, 6A–B)

Thalassocrinus nov. sp.: Carey *et al.* 1990: 229.

Etymology. This new species is dedicated to the submersible "Alvin" used to collect the two specimens.

Material. Two specimens from the axial valley of the Gorda Ridge (see Carey *et al.* 1990) are catalogued in the collections of the National Museum of Natural History (USNM) in Washington, D.C., USA. Holotype: USNM E36051, "Alvin" dive 1406, 11 July 1984, 41°42′N, 127°14′W, 3100 m depth, collectors C. Collasins, R. Embley, and C. MacMurtry. Paratype: USNM E36052, "Alvin" dive 1405, 10 July 1984, 41°31.5′N, 127°26.4′W, 3500 m depth, collectors S. Hammond, R. Hollis, and A. Malahoff.

Diagnosis. Species with narrow arms and large attainable size. Proximal arm pattern 1+2 3 4+5 6+7 with first pinnule at Br 5, sometimes becoming 1+2 3 4 5+6 in larger specimen (paratype). Beyond brachial bearing first pinnule; 2 successive muscular articulations appearing from Br 10 to Br 32. Width very variable along each brachial ossicle, thus imparting rough texture to arms. Genital pinnules with single row of well developed lateral plates and rounded cover plates. Upper part of radials 2.6 to 2.7 times wider than most proximal brachial. Conical dorsal cup with ribs prolonging arm axes; each rib dividing into 2 small ribs on basal ring. Top of tegmen with moderate-sized oral cone. Conical anal tube situated near oral cone. Proximal columnals united by symplexies showing symmorphic trend. Six crenular units of 1 to 3 crenulae. Axial canal with well developed claustrum. Distally, symplexies becoming multiradiate and preserving juvenile hexaradiate stage in their center.

Description. *Holotype* (USNM E36051) (Figs 1, 2A–F). Specimen consisting of crown, theca, and proximal part of stalk (4 cm in length) (Fig. 1A). More distal stalk fragment (6 cm in length) partly dissociated for study under SEM. Arms long and flexible, bearing 30 to 40 long, gracile pinnules on each side. Arms and pinnules tending to be rolled up in their distal parts. Arm length up to 12 or 15 cm. Proximal pattern always 1+2 3 4+5 6+7 8+9 10+11, with Br 5 bearing first pinnule. Brachial width variable but attaining maximum of 2.3 mm at arm base. Brachial pairs united by synostoses, and normal brachials showing constriction (to less than 1.6 mm wide) midway between their 2 muscular articulations (Fig. 1E). External morphology of arms irregular and rough. Proximal brachials and pinnulars developing lateral projections (Fig. 1C–D). Pinnule length greatest (38 mm) at center of arms. In proximal to mid part of arms, genital pinnules having typical morphology, with single row of well developed, rectangular lateral plates, but distally, this feature progressively disappearing. Cover plates somewhat rounded with no terminal projection. Arms partly preserved, but most complete arm bearing 2 rows of 30 pinnules. Beyond first pinnule, first brachial with 2 muscular joints appearing at Br 10, 15, 26, or 32, distally brachial pattern usually a+b c d+e f, etc. One arm without non-muscular joints from Br 26 to Br 30. Brachial synostosis (Fig. 1F) with homogeneous synostosial stereom and elliptic to rectangular axial canal. Brachial muscular articulations (Fig. 1G–H) with deep, dorsal ligament fossa and 2 strongly

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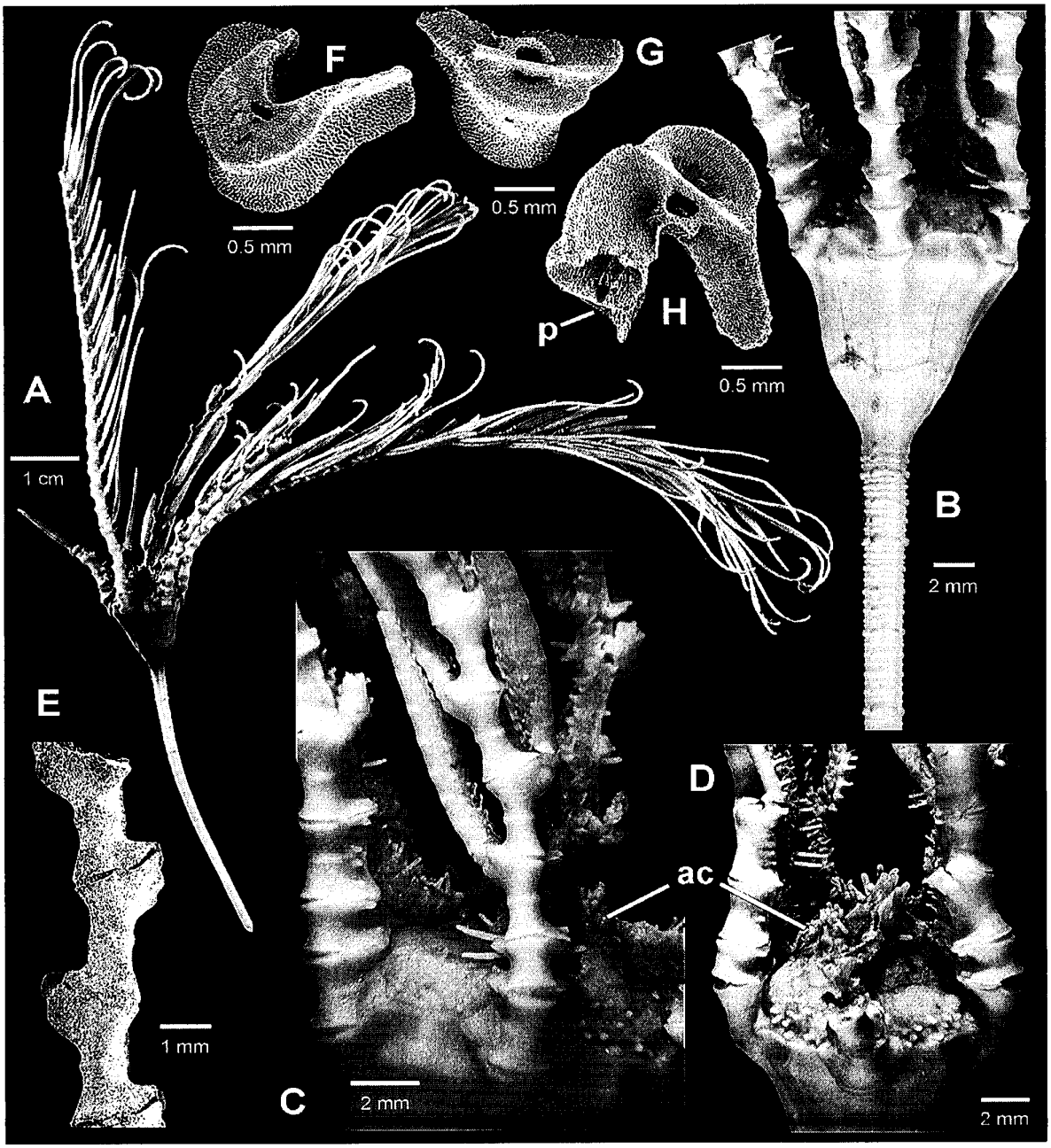

Fig. 1. *Thalassocrinus alvinae* n. sp., holotype. A, general view; B, dorsal cup with proximal parts of stalk and arms; C, detail of proximal parts of arms and pinnules; D, tegmen and proximalmost parts of arms, front arm broken at Br 1+2; E–H, SEM views of brachials: E, dorsal view of successive brachial pairs; F–G, hyposynostosal brachial, F, distal facet (synostosis), G, proximal facet (muscular synarthry); H, distal facet of episynostosal facet (muscular synarthry bearing pinnule). ac: anal cone; p: pinnule articulation.

asymmetrical muscular areas. Pinnule articulation to brachial entirely in ventral position; this articulation and following one being well developed muscular synarthries. Beyond, pinnulars articulated by flat non-functional synostosis proximally, and distally functional synostosis with small elevation around axial lumen

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giving more flexibility.

Dorsal cup with regular conical shape (Fig. 1B). Radials about 1.6 times higher than basals. Along interradial sutures, radial height 6.9 mm, and 6.3 mm along radial axes. Upper radial width 5.9 mm, 2.6 times wider than arm base. At level of basal/radial suture, dorsal cup diameter 6.3 mm, becoming 11 mm at top of radial ring and 2.5 mm at base of cup. Basal height 3.7 to 3.9 mm. Rib prolonging arm axis on radials dividing into 2 small ribs on basals. Sutures between radials and between radial ring and basal ring conspicuous. Basals apparently fused, only one suture trace being observed.

Oral ring moderately developed at top of tegmen (Fig. 1D). Each oral plate bearing several small, finger-like projections. About 12 tegminal plates per interradius with verrucose texture near outer border of tegmen. From arm base to orals, food groove fine to spinous. Conical anal tube having about same elevation as oral cone and located in inner part of tegmen near oral cone.

Proximal columnals with sharp epifacets, imparting rough texture to outer surface of proximal part of stalk (Fig. 1B). These epifacets dissappearing about 16 mm below base of dorsal cup. Stalk diameter lowest (1.4 mm) at 35 mm below dorsal cup. Diameter of most proximal columnals about 2.1 mm. Isolated stalk segment with proximal diameter of 1.5 mm. At its distal end, columnal height 1.5 mm and diameter 1.65 mm.

Proximal columnals articulated by hexaradial symplexies with features typical of other species of *Thalassocrinus* (Fig. 2A–C) (Roux 1980). Crenular units with 1 to 3 radial crenulae. Ligamentary areola around axial lumen divided into 6 subcircular lobes between inner parts of crenular units. Between outer parts of crenular units, facet covered by synostosial stereom. At mid-columnal height, claustrum present in axial canal. Subcircular lumen opening on facet center. Secondary lumen in claustrum irregularly stellate. Conspicuous symmorphy apparent between opposite symplexies of same articulation. Symmorphic relief inverted for crenular units and areolar lobes (Fig. 2A–B). Sometimes, all crenular units raised (relief) and areolar lobes hollowed; however, frequently, several crenular units raised (relief) while others hollowed.

Symplexies changing from proximal to distal part of stalk as columnal height increases (Fig. 2D–F): 2 (rarely 3) crenulae becoming relatively short and separated by syzygial areas, main part of areola becoming annular, hexalobate feature and symmorphic trends disappearing, perilumen with larger stereom meshes appearing, and secondary lumen of claustrum becoming subpentagonal while facet's lumen remains subcircular.

Paratype (USNM E36052) (Figs 2G–I, 3, 6A–B). Specimen (Fig. 3) larger and older than holotype. Arms broken with only a few proximal brachials connected to theca. Proximal part of stalk (length 75 mm) attached to dorsal cup, with isolated stalk fragment (length 100 mm) representing its distal extension. Stalk diameter 2.7 mm at 70 mm below dorsal cup and up to 3.2 mm a few millimeters beneath cup. Proximal part of stalk displaying maximum diameter and subhexagonal cross-section.

Dorsal cup subconical; maximum diameter 15 mm at arm junction, 8.6 mm at radial/basal suture, 3.3 mm at its base, just below constriction narrowing to 2.9 mm. Basal height up to 4.9 mm. Radial height up to 7 mm axially and up to 6.2 mm at radial suture. Radial width up to 8.2 mm at top, 2.7 times wider than arm base.

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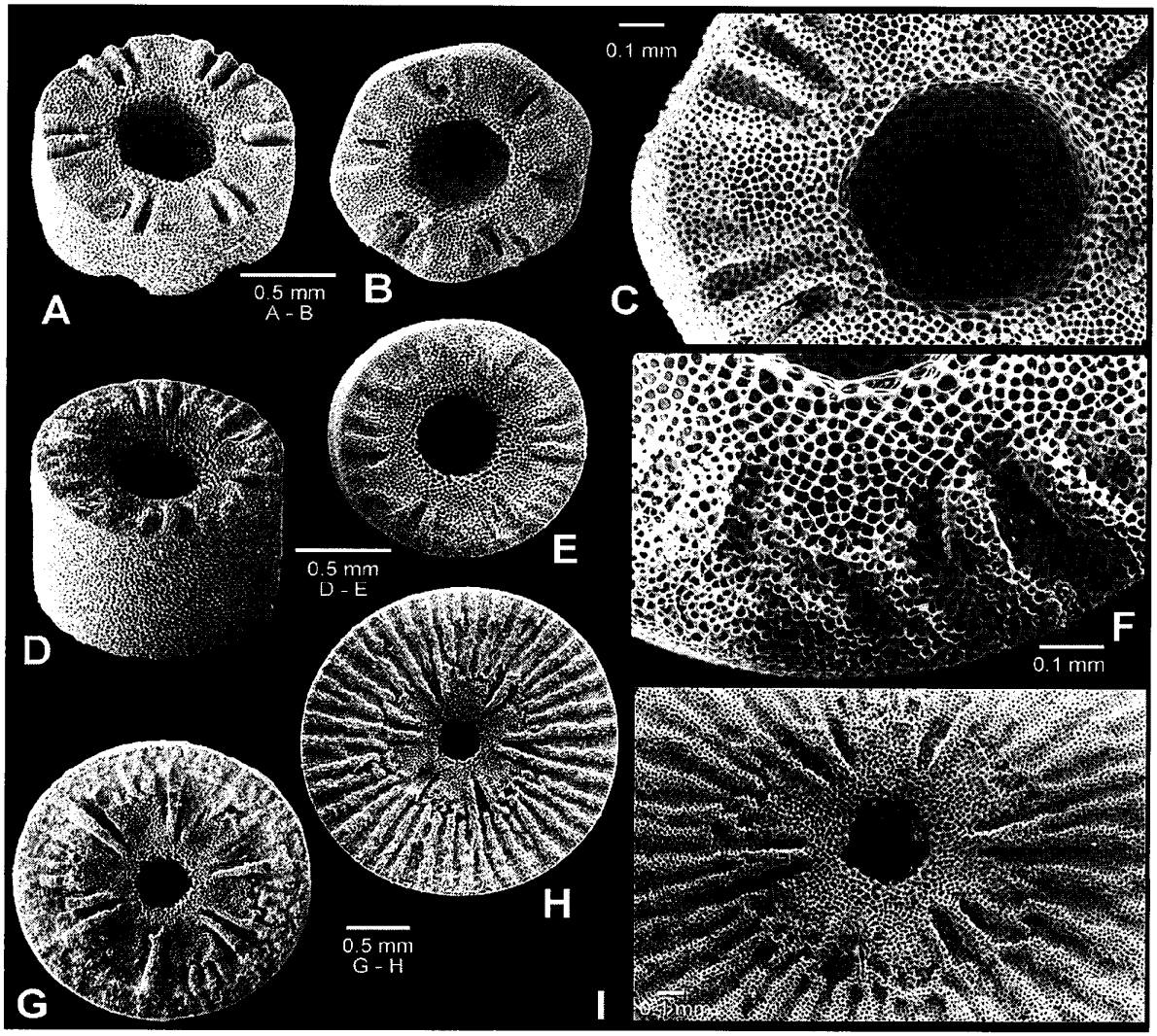

Fig. 2. *Thalassocrinus alvinae* n. sp., SEM views of columnals. A–F, holotype; G–I, paratype. A–C, from proximal ends of isolated stalk fragment; D–F, from distal ends of same fragment; G, from distal end of stalk fragment attached to dorsal cup; H–I, from distal end of distal stalk fragment. A and C, proximal facet of a columnal; B, opposite facet of same articulation showing symmorphic pattern; D–F, distal facet of a columnal; I, detail of H showing the juvenile pattern.

Rib prolonging arm axis on radial dividing into 2 branches on basal (sometimes from lower part of radial). Sutures conspicuous between radials and between radial ring and basal ring. Basals fused.

Since arms broken, tegmen easily observed despite relatively bad preservation (Fig. 3E). Numerous tegminal plates forming regular pavement. Oral cone and anal cone moderately developed. With crown closed, the tegmen could be relatively inflated.

Proximal arm pattern 1+2 3 4+5 6+7 with first pinnule at Br 5 (2 cases) or 1+2 3 4 5+6 (1 case); site of first pinnule in latter case (Br 4 or Br 6) unclear but likely at Br 4. If so, pattern 1+2 3 4 5+6 could be derived from 1+2 3 4+5 6+7 by fusion of

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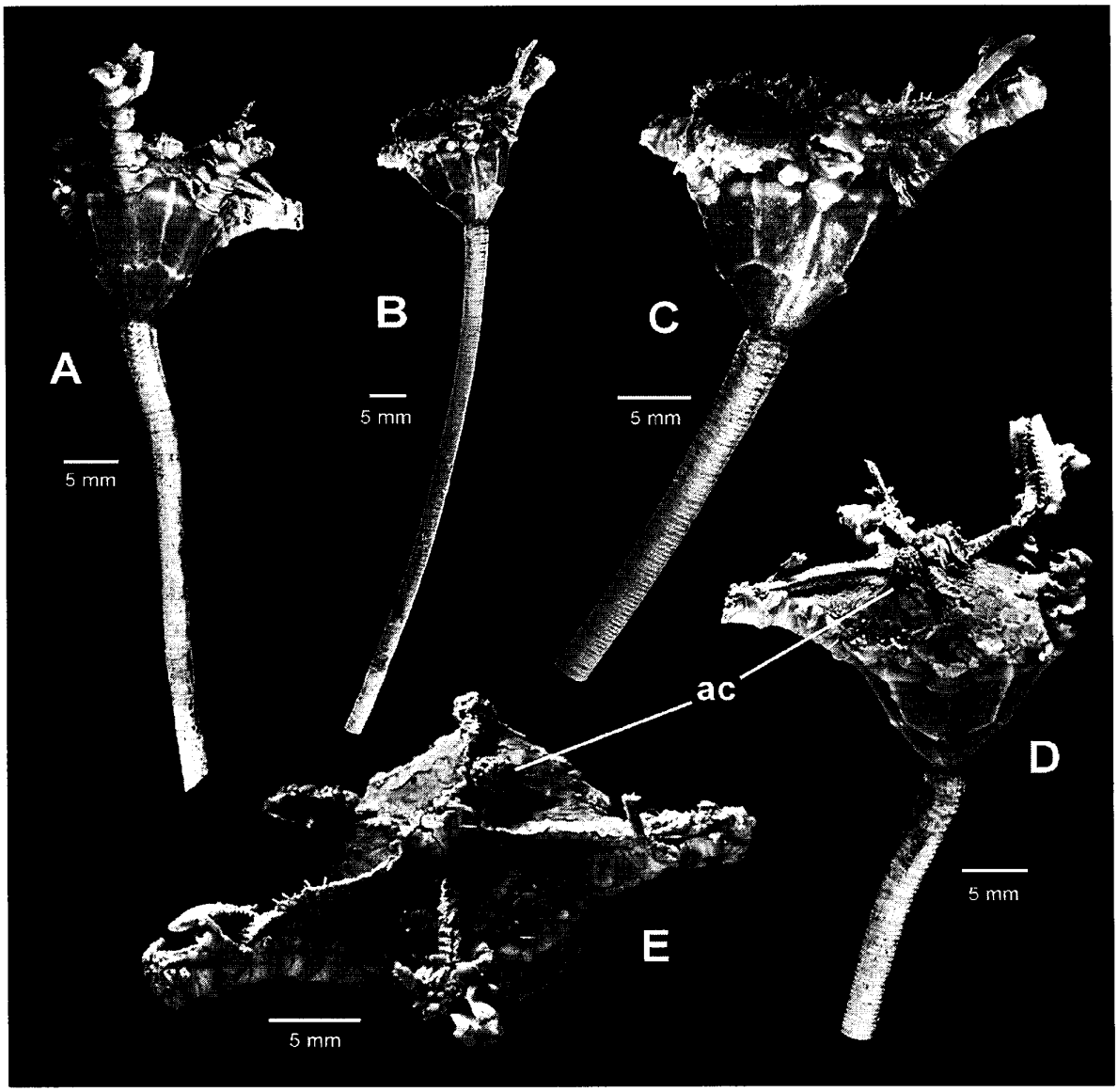

Fig. 3. *Thalassocrinus alvinae* n. sp., paratype. A–B, two side views of proximal stalk and dorsal cup; C, detail of B; D, oblique view of theca; E, general view of tegmen. ac: anal cone.

brachial pair 4+5 during ontogeny.

Muscular brachial synarthries with large, deep, dorsal ligamentary area with growth lines near outer border. Fulcral ridge well developed. Pinnular articulation not lateral but in somewhat inner position prolonging one muscular area; other muscular area curved and strongly divergent. Proximal brachial synostosis with beginning of syzygial crenularium on outer edge; axial canal strongly rectangular. Genital pinnules with single row of lateral plates bearing rounded cover plates as in holotype (Fig. 6A–B). Distal cover plates sharper than proximal ones.

At distal end of stalk fragment attached to dorsal cup, columnals articulated by hexaradial symplexies bordered by annular syzygial areas (Fig. 2G). Crenular units of 1 to 3 relatively long radial crenulae. Ligamentary areola hexalobate. Around subcircular lumen, galleried stereom with larger meshes than in lobes.

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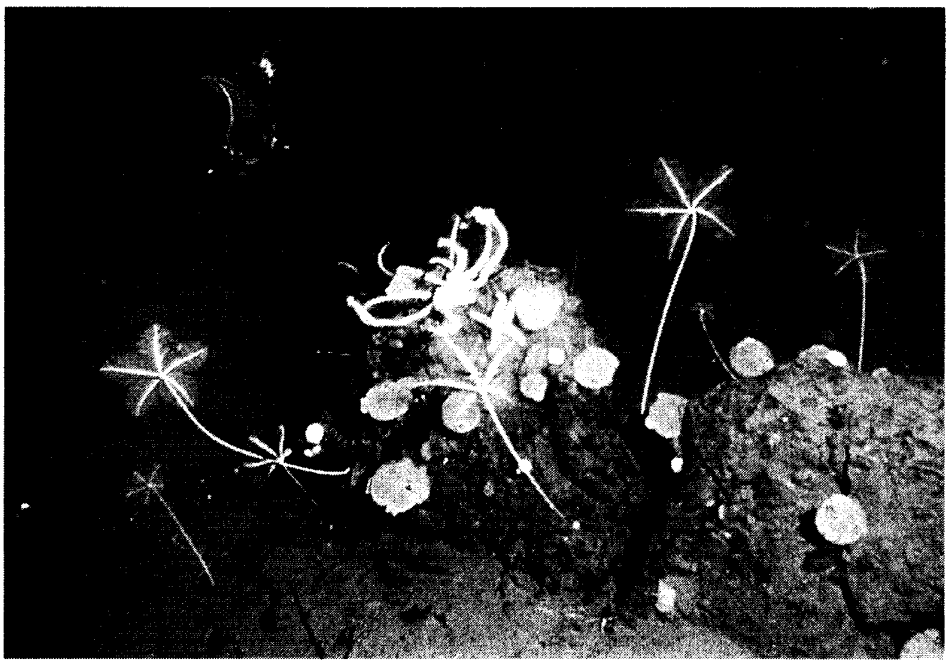

Fig. 4. Deep-sea photograph of several specimens of *Thalassocrinus alvinae* n. sp. taken from the submersible "Alvin" on the Gorda Ridge (dive 1405, depth 3500 m). Courtesy of A. G. Carey, Jr.

At distal end of separate stalk fragment, columnals articulated by multiradiate symplexies with 35–40 regular radial crenulae, a few having 1 dichotomy (Fig. 2H). Juvenile hexaradial stage preserved in center of facet, with crenular units of 1 or 2 crenulae (Fig. 2I). Lumen pentagonal.

Discussion. The two specimens are interpreted as two ontogenic stages of the same species. The holotype represents a young adult, whereas the paratype represents an older individual. Consequences and additional support for this interpretation are as follows:

(1) the columnal symplexies show different growth stages that could belong to the same ontogenic trajectory. The long radial crenulae in the paratype's crenular units are due to a wider proximal diameter in the paratype than in the holotype.

(2) the proximal arm pattern 1+2 3 4 5+6 in the paratype could be the consequence of an ontogenic trend leading to fusion of brachials 4+5 in larger and older specimens.

(3) other characters such as the lateral and cover plate patterns of the genital pinnules, and the ornamentation and shape of the dorsal cup, oral and anal cones, etc. are very similar.

(4) deep-sea photographs taken from the submersible (Fig. 4) show populations with individuals of very different sizes (and presumably ages), the paratype being the largest specimen observed.

Thalassocrinus alvinae n. sp. is the first record of this genus from the Eastern Pacific. It shows greatest affinities with *T. pontifer*. Both species have narrow proximal brachials and proximal stalk symplexies with symmorphy. *Thalassocrinus pontifer* differs in having series of more than two brachials united by synostoses

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and a lower dorsal cup without radial ribs. The other species of *Thalassocrinus* differ from *T. alvinae* in having wide proximal brachials. The paratype of *T. alvinae* is the largest and presumably oldest specimen known in the genus, and the only specimen with one arm on which the first pinnule is not at Br 5, but at Br 4 or 6 (probably Br 4).

Thalassocrinus mironovi n. sp.
(Figs 5, 6C–J, 7)

Thalassocrinus aff. *pontifer*: Bourseau *et al.* 1991: 283–284, pl. 6, figs 4–5.
Thalassocrinus n. sp.: Mironov and Sorokina 1998: 39.

Etymology. This new species is dedicated to A. N. Mironov, P. P. Shirshov Institute of Oceanology in Moscow.

Material. One specimen, the holotype from the bathyal slope off New Caledonia (southwestern Pacific) (see Roux 1994), is catalogued in the collections of the French National Museum of Natural History (Echinoderm section) in Paris. Holotype: CALSUB Cruise, "Cyana" dive 17, 8 March 1989, 21°27.0′S, 106°24.0′E, 1870 m depth, collector C. Gaillard. Additional material: numerous isolated columnals found in sedimentary samples from same area at depths ranging from 900 to 2000 m.

Diagnosis. Species with wide proximal brachials. Proximal arm pattern 1+2 3 4+5. Beyond Br 5 bearing first pinnule; brachials with 2 muscular joints appearing from Br 18 (exceptionally from Br 6 or 13). Genital pinnules with single row of relatively small lateral plates; end of each cover plate with sharp, rectangular projection. Elongated dorsal cup with wide radial rib prolonging each arm axis. Well developed, subcylindrical anal tube. Each oral plate bearing 1 finger-like projection. Proximal columnals hexalobate, becoming barrel-shaped more distally. Stalk symplexies hexaradiate with 2 or 3 (rarely 1) crenulae per crenular unit, always with conspicuous perilumen, and without symmorphy.

Description. Holotype consisting of complete crown, theca, and stalk (stalk length 135 mm), broken before distalmost end of stalk and holdfast. One arm removed to observe tegmen; a few ossicles isolated to study their articulations under SEM.

Arm length up to 65 mm, with widths of 2.4 mm at Br 3 and 1.8 mm at Br 10. One arm smaller than others, probably regenerating. Four proximal brachials joined laterally arm-to-arm and sheltering tegmen when crown closed (Fig. 5A). Proximal arm pattern always 1+2 3 4+5 with first pinnule at Br 5. Brachials with 2 muscular articulations appearing more proximally (Br 6, 13, 16, 19, etc...) in regenerating arm than in others (Br 18, 23, 26, etc... in 2 cases; from Br 22 or Br 26 in 1 case each). Brachial synostosis (Fig. 6E–F) with flat facet covered by synostosial stereom and elliptical axial canal. Brachial muscular synarthries (Fig. 6H–I) with somewhat rounded shape and low asymmetry of muscular areas (Fig. 6I). A few proximal brachials with large stereom projections on ventral side (Fig. 6H). Large, circular pinnule articulation on brachial (Fig. 6G–J) in slightly lateral position. Well developed second pinnular synarthry (Fig. 6J); other pinnular articulations being synostoses.

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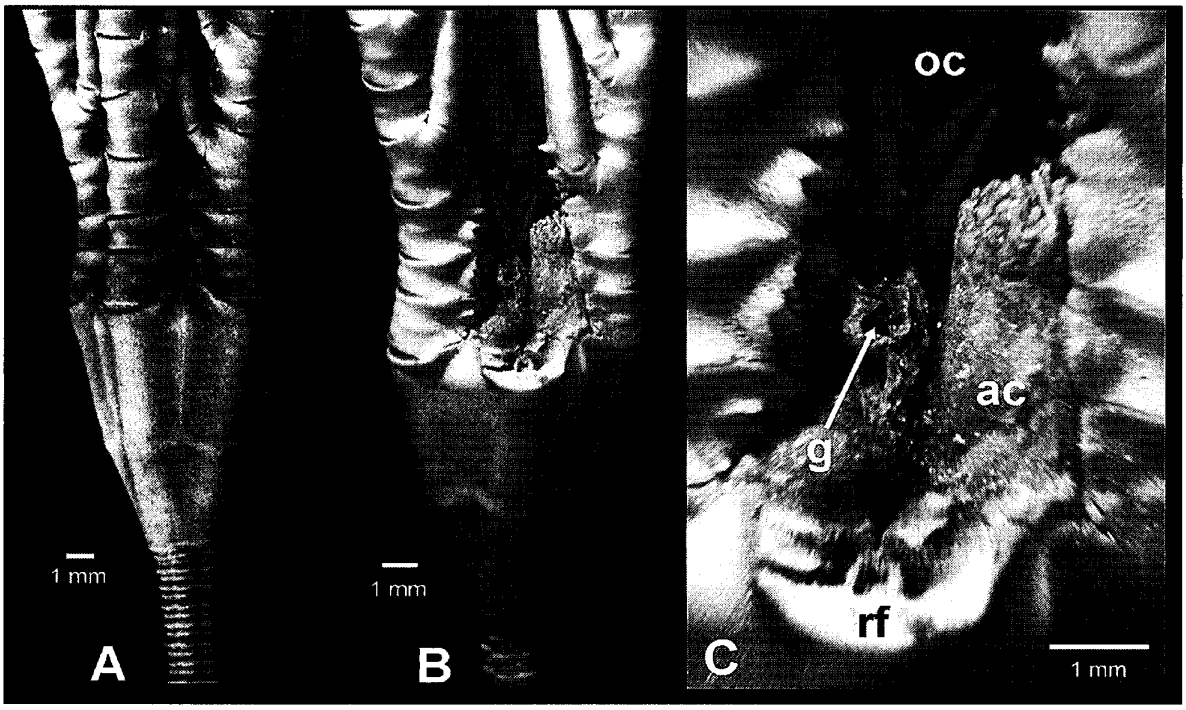

Fig. 5. *Thalassocrinus mironovi* n. sp., holotype. A, dorsal cup and proximal parts of stalk and arms, view of anal interradius; B–C, view of tegmen, one arm being broken. ac: anal cone; g: section of axial food groove; oc: oral cone with finger-like projections; rf: radial facet of arm articulation.

Genital pinnules observed until about Br 46, their maximum length 27 mm. Arm and pinnule ends rolled up. Inflated proximal part of genital pinnules with single row of relatively small lateral plates bearing cover plates. Cover plate end with sharp, rectangular projection (Fig. 6C–D).

Top of tegmen at level of Br 4 (Fig. 5B–C). Each oral plate bearing long, finger-like projection with rounded end. Well developed anal cone subcylindrical with its apex at level of Br 4+5. Number of tegminal plates always more than 10 in each interradius.

Dorsal cup height 10 mm. Radial height 6.2 mm. Maximum diameter of cup (7 mm) at level of radial-brachial joints. Primibrachials as wide as radials. Sutures between radials conspicuous. Basals fused; 2 irregular cracks not representating suture traces. Whole dorsal cup with wide radial ribs prolonging arm axes (Fig. 5A).

Proximal stalk diameter 2.2 mm, decreasing to 1.6 mm at 15 mm below dorsal cup and remaining so until broken end. Proximal part of stalk with rough outer surface and hexagonal cross section. More distally, columnals barrel-shaped with circular joints and smooth outer surface (Fig. 7D–E). In proximal symplexies with hexagonal symmetry (Fig. 7A–B), each crenular unit with 2 or 3 inequal and irregular crenulae. Galleried stereom with large meshes forming distinct perilumen around axial canal. Barrel-shaped columnals with circular facets and 6 crenular units with 3 (rarely 2) parallel crenulae (Fig. 7C–D). Crenular units separated by areas covered with synostosial meshwork. Majority of ligamentary areolae show-

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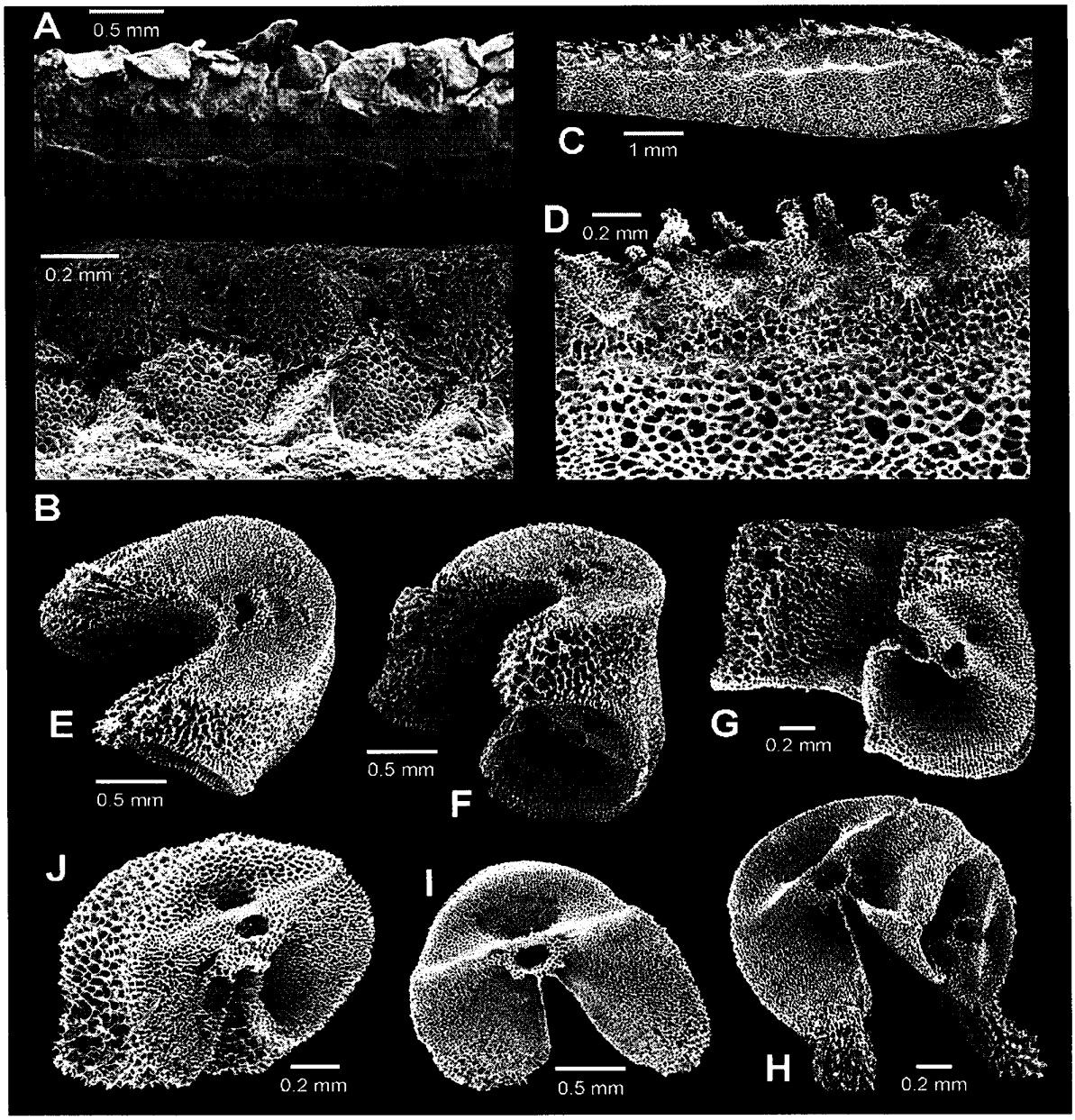

Fig. 6. *Thalassocrinus alvinae* n. sp., paratype (A–B) and *T. mironovi* n. sp., holotype (C–J), SEM views. A–D, genital pinnules: A, oblique view, B, detail of cover plates, C–D, side views with pinnular, lateral, and cover plates; E–I, brachials: E–G, oblique and side ventral views of an episynostosial brachial, (E, synostosis; F, intermediate oblique view; G, pinnule articulation), H, muscular synarthry with pinnule articulation and ventral stereom projections, I: muscular synarthry of hyposynostosial brachial; J, proximal muscular synarthry of secund pinnular joint.

ing annulus of galleried stereom around lumen. Axial canal subcircular; perilumen consisting of synostosial stereom with large meshes. More distally, axial canal becoming subpentagonal, and crenular units with 1 to 2 crenulae (juvenile pattern); outer part of facet becoming very irregular especially between crenular

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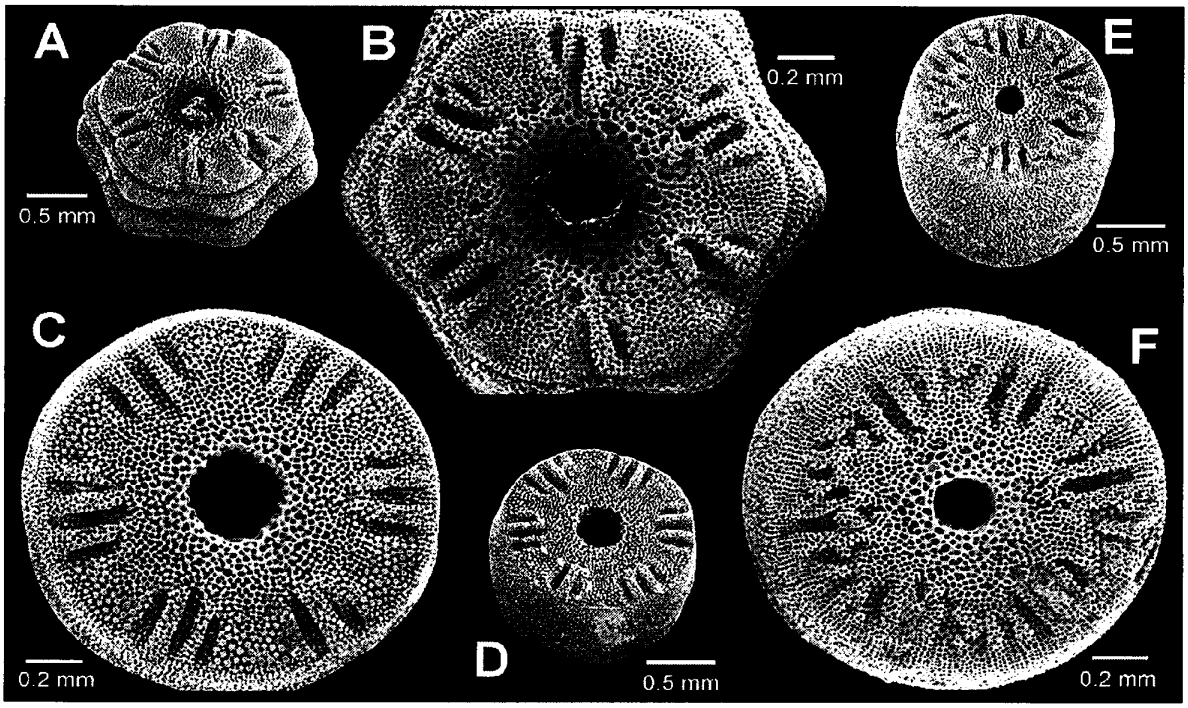

Fig. 7. *Thalassocrinus mironovi* n. sp., holotype, SEM views of three columnals in oblique and enlarged end-on aspect. A–B, three proximal columnals; C–D, median columnal; E–F, distal columnal.

units (Fig. 7E–F).

Discussion. *Thalassocrinus mironovi* n. sp. shows clear affinities with *T. clausus*, both living in the western tropical Pacific. They have a similar general morphology and both have orals with finger-like projections. Special characters of *T. mironovi* include wider proximal brachials, a sheltered tegmen when the crown is closed, a more variable arm pattern, and stalk symplexies with 2 to 3 crenulae per crenular unit. However, each species is known from only one specimen; *T. clausus* could be a juvenile and *T. mironovi* an older specimen of the same species. If so, during ontogeny the proximal brachials would become wider and the number of brachials with two muscular joints would increase. The number of crenulae per crenular unit (1 towards 3) in stalk symplexies would also increase. Given the present state of our knowledge, the recognition of two different species is for the moment the best interpretation.

Conclusion

The two species described here represent two opposite phenotypes of the genus *Thalassocrinus*. They are mainly distinguished by the proximal part of the arms. One phenotype (*T. alvinae* and *T. pontifer*) has narrow proximal brachials. Between adjacent arms, the tegmen is plainly seen. The other phenotype (*T. mironovi*) shows wide and adjacent proximal brachials, and the tegmen is only observable when one ray is broken. Arms of *T. clausus* are intermediate. A narrow

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proximal part of the arm is a paedomorphic character while a wide proximal part is peramorphic. Thus, a heterochronic gradient of morphological development (Roux *et al.* 1997) is clear in the genus *Thalassocrinus*.

The two specimens of *T. alvinae* provide additional information about ontogenic trends. As observed in *Hyocrinus* (Roux and Pawson 1999), the large, old specimen of *Thalassocrinus* has a relatively inflated tegmen with numerous tegminal plates and a paedomorphic oral cone. This specimen shows one case of the arm pattern (1+2 3 4 5+6) known in *Anachalypsicrinus* and *Ptilocrinus*, suggesting a heterochronic gradient of arm pattern development through all the hyocrinids, where *Hyocrinus* could be the paedomorphic pole and *Ptilocrinus* the peramorphic one. Because there frequently is wide phenotypic variation in stalked crinoids, especially at different ontogenic stages, additional specimens are needed to clarify the relationships between the hyocrinid taxa. Currently, three of the four species assigned to *Thalassocrinus* are known from a single specimen each, and the fourth from just two specimens.

The discovery of *T. alvinae* on the East Pacific Rise (Gorda Ridge) extends the geographic distribution of the genus *Thalassocrinus* from the western side of the Pacific Ocean to its eastern part.

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